

## Millijoules high master-slave pulse ratio 532 nm picosecond laser

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**Abstract:** A high master-slave pulse ratio 532 nm picosecond laser with pulse energies of millijoules is reported in this paper. Mode-locking picosecond oscillator was used as seed source with 30.8 ps pulse width, spectral width 0.15 nm, 150 mw average power and 1064 nm center wavelengths at the repetition rate 88 MHz. With laser diode (LD) side-continuous-pumped Nd:YAG picosecond regenerative amplifier, average power of 2.5 W was achieved at 1 kHz, which corresponds to single pulse energy of 2.5 mJ. After LBO frequency doubling, 1.5 mj and 26.2 ps output pulses at 532 nm are obtained with master-slave ratio higher than 200. The satellite laser ranging precision is about 7 mm at Changchun station, which makes this laser an attractive device for satellite ranging.

Key words: laser, satellite laser ranging